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CCNP ISCW Quick Reference Sheets

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Network Conceptual Models

Conceptual models allow network designers to move from looking at the network as a collection of devices to viewing it as a way to provide services to users, no matter where the users and the services are located. Cisco currently defines three models as the building blocks of a world-class enterprise network: the Intelligent Information Network, the Service-Oriented Network Architecture, and the Cisco Enterprise Architecture.

Intelligent Information Network

The Intelligent Information Network (IIN) seeks to create a holistic network that integrates with and enables your business processes. It allows centralized control and interoperation of distributed systems. This control and interoperability can provide increased network security and efficiency.

The IIN consists of three components:

- **Integrated transport**—Data, voice, and video all transported over a secure IP network.

- **Integrated services**—Shared/virtualized resources, such as storage and servers.
- **Integrated applications**—The network is application aware, enhancing the efficiency of applications. This component includes Application-Oriented Networking (AON), which offloads shared, common functions, such as logging and security, to the network.

Service-Oriented Network Architecture

An intelligent network is delivered using the Service-Oriented Network Architecture (SONA) framework. SONA sees a converged network as the connecting thread for all the portions of the network and the services provided. The network is application aware; that is, it contains the intelligence needed to tie all the various types of traffic together to deliver required services. SONA defines three layers:

- **Network Infrastructure**—IT resources such as servers, users, WANs, and office locations all connected and accessible to each other
- **Integrated Services**—Services such as voice, network management, mobility, security, and storage that are delivered using the network infrastructure
- **Application**—Business applications that function using the integrated services

CHAPTER 1

In an enterprise, the campus and branch offices, teleworker access, and WAN access all fall under the Network Infrastructure layer of the SONA. This categorization allows workers in all types of locations to access the services and applications of the other layers. The Cisco Enterprise Architecture defines how each of these components should be designed and structured.

Cisco Enterprise Architecture

The Cisco Enterprise Architecture model divides the network into building blocks and gives best practices for the architecture of each one. The traditional three-layer model (Core, Distribution, and Access) is still around and can be integrated into the design of components of the Enterprise Architecture model.

Enterprise Architecture building blocks include the following:

- **Campus**—The enterprise core, or headquarters. The campus building block contains routing, switching, security, Voice over IP (VoIP), wireless, and so on.
- **Data center**—Server and application resources. Redundant data centers provide business continuity and allow load balancing.
- **Branch office**—Remote locations that contain services similar to the campus but are administered centrally rather than at each location.

- **Teleworker**—Either a small office, home office, or a mobile user. Extends data (and possibly voice) services to these users over a virtual private network (VPN) using broadband WAN access.
- **WAN**—Connects all the different blocks together. Converges voice, video, and data over an IP WAN that provides security, quality of service (QoS), and ubiquitous access.

WAN options between the campus and branch offices include traditional Layer 2 connections such as Frame Relay, ATM, and leased lines. Multiprotocol Label Switching (MPLS) can provide any-to-any connectivity between the sites and is highly scalable. IPsec VPNs across the Internet can also be used.

This short cut is concerned mainly with how the campus, branch, and small office, home office (SOHO)/teleworker portions of the network use the WAN to communicate with each other to provide network services to their users.